CONCEPT DEVELOPMENT IN PREPARATION FOR THE CANE OR DOG.

By

Robert A. Eisenberg

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~~the staff of Queen Alexandra College for the Blind, in Birmingham, England. To this last group, may I express a special note of thanks for their cooperation and graciousness during the twelve months I invaded their domain.~~

~~August, 1967, was the beginning of the second year of operation for the Midlands Mobility Center in Birmingham, England, and growth in demand for services, staff, and space was apparent. In addition to the July 1967 waiting list of ten people, the Royal National Institute for the Blind requested the center to train six mobility instructors for them. The staff at the beginning of the second year consisted of: Mr. Robert Crouse, the American Instructor, who directs and coordinates the mobility program; Miss Mary Hulme, his assistant, a Birmingham University graduate; and Mrs. Joan Seddon, also a graduate of Birmingham University. This year also saw them outgrow the one desk operation and move into their own building, where each staff member has his own office.~~

~~Mr. Crouse has recently written, stating he has signed up to stay on for two years with the center. I do hope in the future he has the time, and will be allocated the space, to keep us informed of the development of mobility programs throughout England.~~

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CONCEPT DEVELOPMENT IN PREPARATION FOR THE CANE OR DOG

By Robert A. Eisenberg*

Purpose of the Article

The purpose of this article is to present a systematic procedure used to correct one of several concept deficiencies existing for a majority of congenitally blind individuals--that of the spatial relationships within basic street and city block patterns.

It is hoped that the detailed description to follow will be of interest not only to those professional mobility instructors to whom it is new, but to other persons such as parents, teachers, counselors, and others interested in the education and welfare of congenitally blind individuals. Certainly, dog-guide instructors could and should provide remedial instruction in these concepts before training such a client.

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The Existing Problem

Mobility instructors, both with the cane and the dog, have repeatedly experienced difficulties teaching independent travel to such individuals due to their lack of understanding the outdoor environment. Instructors who have taught a number of congenitally blind people to use the cane have probably had the experience of their student progressing nicely in the development of good basic cane techniques indoors, only to learn that during residential travel outdoors the student experiences difficulty applying the cane skills to the real environment. Often lacking are such concepts as: the continuation of streets after they cross intersecting streets, the relationships of the streets and corners at an intersection, the directional designation of intersection corners (NE, NW, SE, SW) and the potential alternate routes which can be taken from one place to another.

As a result of these and other concept deficiencies, failures occur and practice must stop while an understanding of the situation is established through discussion, exploration, examination, and comparison. During this period, the basic cane skills deteriorate due to lack of use and the level of self confidence diminishes due to lack of reinforcing successful travel. Each new conceptual problem introduces failure and in turn, each new failure requires another halt in progress and a regression in travel skills and confidence.

For these reasons it is suggested that where an evaluation of the individual indicates he lacks essential environmental concepts, introduction to the cane or dog be postponed until after these concepts are learned.

You must recognize in reading the following description that it is assumed that preliminary concept development in the areas of laterality (right and left), basic geometric shapes, cardinal directional relationships and basic spatial terminology such as parallel, perpendicular, diagonal, etc., would have been completed at an earlier age or during instruction in orientation and mobility techniques for indoor travel. I believe that within the limits of the individual student to draw inferences and to generalize from past experience, we can use familiar environments as references for comparison with new situations about which we plan to develop a concept.

INTRODUCTION TO A MODEL CITY BLOCK

It is suggested that instruction in concept development begin with the basic unit of the outdoor environment, the city block.

An initial teaching process which experience suggests is useful is to use an object small enough to hold in the hands. Thus the limits can be explored

while still maintaining contact with the starting point of exploration. This symbolic city block can be a book, an ash tray, a plain block of wood, or any other rectangular object that is easily accessable to the instructor in the field, as well as in the classroom.

The student is informed that the model represents a city block in that it is the same basic shape as most city blocks. It is rectangular. The block representation has four sides just as has a city block. Each side of a city block is a street so that there are four different streets forming the sides of a block. In order to learn the relationships of the streets in the student's real block we will name the sides of our model similarly.

Initially the instructor will give the student the model and check his ability to recognize its geometric shape and the basic spatial relationships of its parts to each other, such as; opposite sides, corners, and parallel sides. Next the instructor will physically manipulate the student's hands to demonstrate the spatial relationship of the model's sides to the cardinal compass directions. (See Illustration A "Model City Block", Page 16).

In actuality, one would best relate the directions on the model to the real direction the student is facing so as to reduce the likelihood of confusion on the part of either the student or instructor. For example, the side away from the student might be East in that location. For our purposes we will assume North to be proper. Having located the North side of the model, have the student locate the East, West, and South sides. Practice locating randomly selected sides. When the student can easily and consistently locate the sides in correct relationships to their directional name, he is ready to transpose the names of the streets onto the model in relationship to their directional placement in the real block. Once again the instructor demonstrates that in the real block they are learning about, the street on the North side of the block is Monroe (illustration A, Page 16). Opposite Monroe is Melrose, thus it is on the South side of the block. Similar information is then given regarding Vermont on the East side and New Hampshire on the West side of the block. As before, the student is then tested for recall and at the same time given reinforcement of the names of the streets and their directional relationships until he is consistent.

The next step is to demonstrate that in a city block one must walk along the sides of the block, that is, next to one of the four streets because that is where the sidewalks are located. An explanation that houses, stores, etc., inside the block preventing diagonal crossing of the block may be given. Physical manipulation of the student's hands helps to relate these explanations to the portions of the model.

Demonstration of the manner in which one can travel around a block is given in the following manner. Moving the student's index finger along the edge of

the model from the corner representing Melrose and Vermont (illustration A, Page 16) he is shown in the following terms how one travels in the block. Example: "This is called a corner because two sides meet, just like the walls of a room. As you move your finger along the side of the block just as if you were walking along that side you would be moving toward which side? (North) That is what street? (Monroe) Now then, I want you to continue moving around the block telling me the following things: What direction and what street you are going toward; What direction and what street is behind you; What street are you walking along and on which side of the block is that street?"

When the student has traced the edges of his model reporting as requested, have him reverse the route for practice. Next we can reinforce this learning and check comprehension by having the student demonstrate in a similar tracing manner, giving the same report of relationship as he goes, how he would locate a requested corner from some other corner. Example: "Place your finger at the corner of Melrose and New Hampshire. Then trace the route you would take to get to Monroe and Vermont. Give the same information as before, that is what direction and street you are going toward, etc." Determine if the student recognizes potential alternate routes. If he has trouble determining what to do, demonstrate. Then have him select a route between diagonally located corners again, and select an alternate return route.

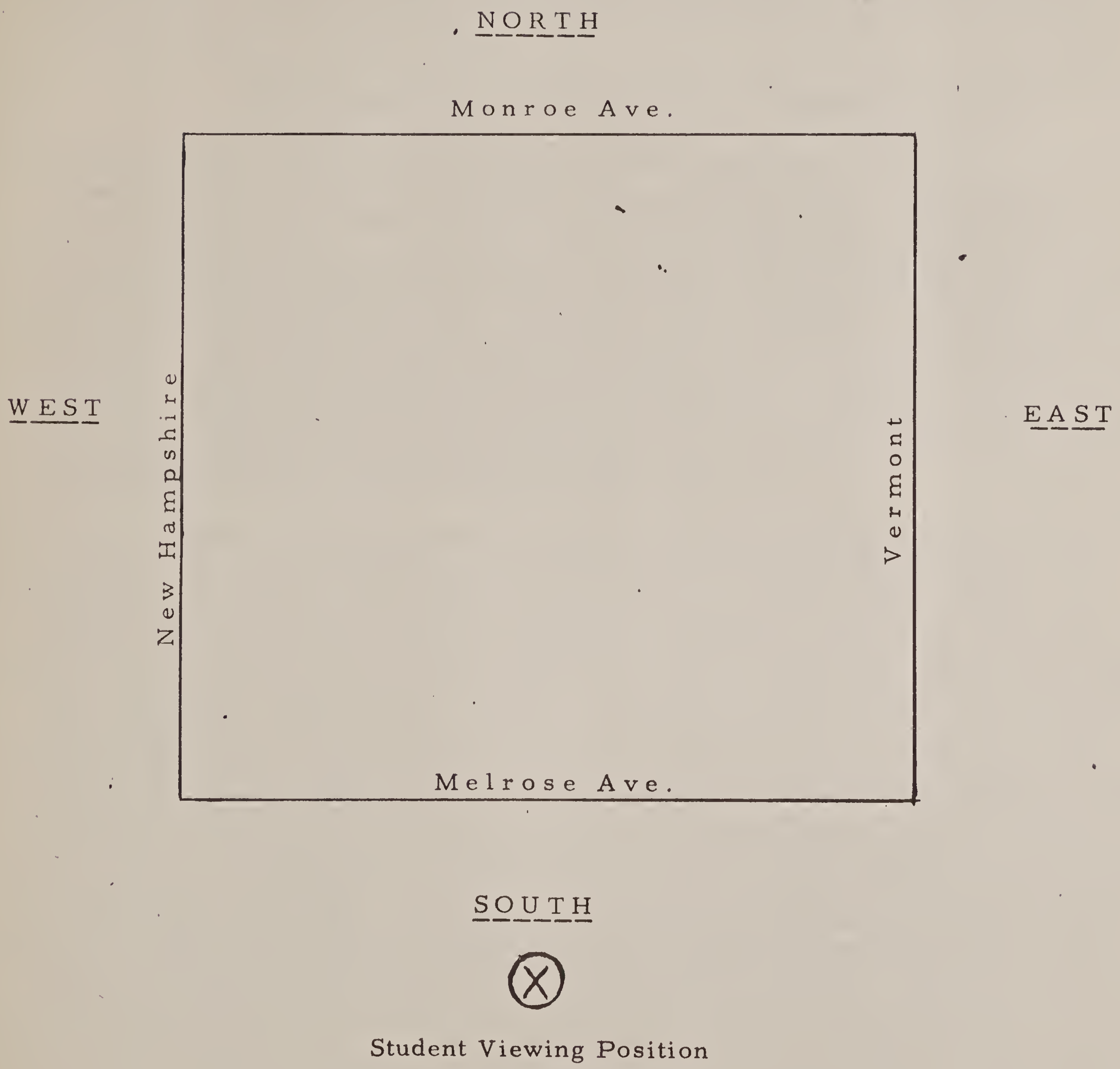
It is hypothesized that through the steps described the student will have developed a tactual, kinesthetic imagery of spatial relationships similar to those involved in a real city block. He can then use this imagery to mentally manipulate those spatial relationships, and remain oriented while traveling.

REINFORCING THE TACTUAL-KINESTHETIC IMAGE

Now that we have developed what I purport is a tactual, kinesthetic image of our model, we can determine if and to what extent this information is usable. In the past, two methods have been used. The first to be described seemed at first like a logical preparatory step for transferring the information to the real situation. It has been excluded successfully, however, with a number of students. It will be described so that further consideration and scientific investigation may be applied by those who feel it may be a desirable reinforcing step before moving outdoors.

The basis of this step is the removal of the original tactual-kinesthetic stimulus, the model, and the transfer to a larger environment in which one can walk the directional relationships as he would in a city block. A room free from obstacles along the wall such as a gym or classroom with movable furniture on the sides would be adequate. In this environment the student can be instructed to relate the names of the streets to the four walls, giving him the directional identity of one wall. Then, the student can independently move around the room reporting in the same manner as when tracing the model with his finger. Similarly, he can be tested for ability to locate intersecting sides of the block such as the

ILLUSTRATION A - MODEL CITY BLOCK



corner of Monroe and Vermont. All the processes done with the model would be applied by the student trailing within a room.

This method has been eliminated in situations where no such suitable room was available. The advantage to using it is that reinforcement and practice in actual body movement is possible without the time-distance factors involved in traversing an actual city block.

TRANSFERRING THE CONCEPT TO THE REAL BLOCK

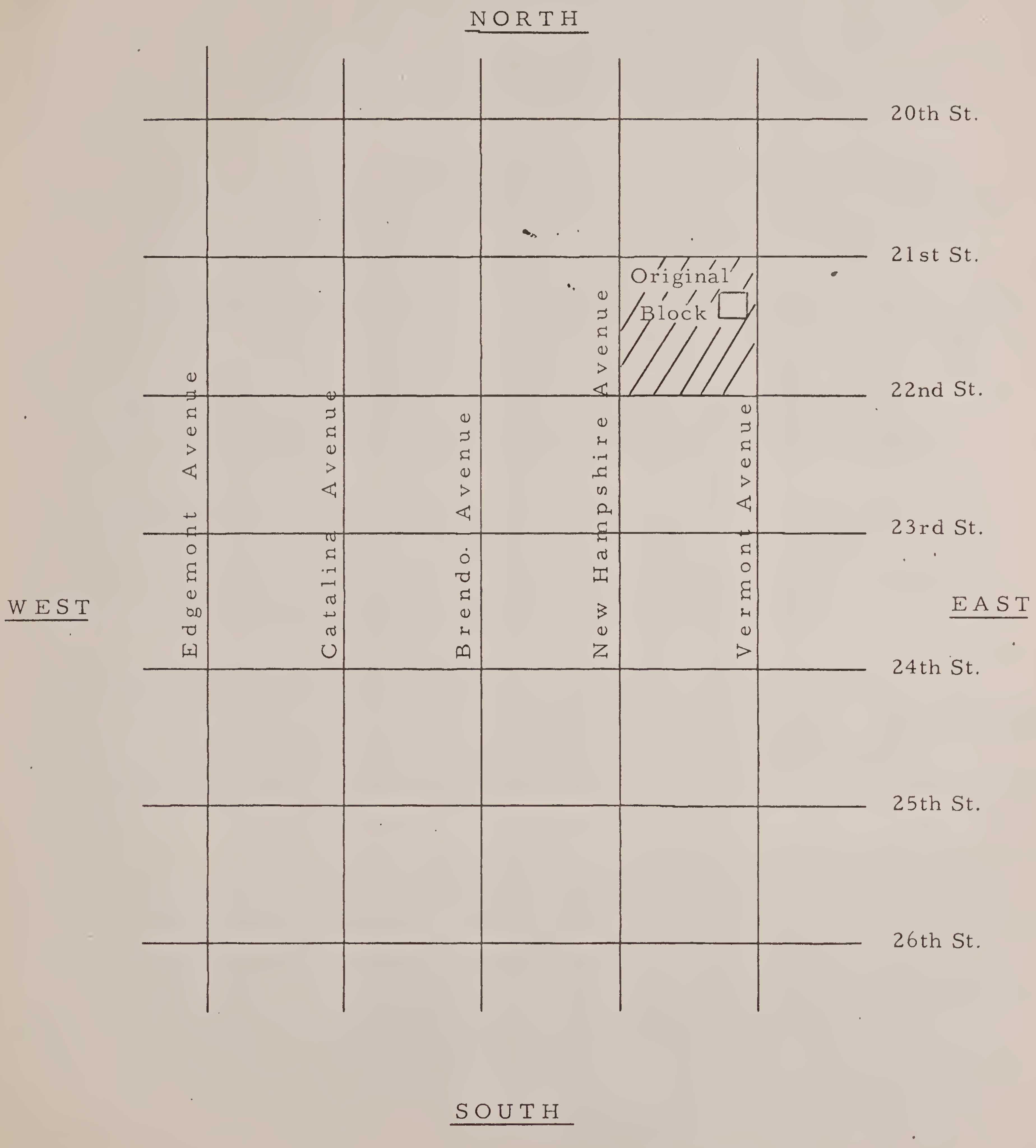
In either case, using or eliminating the room experience, the next step is the transition to the outdoor environment. The student is taken under sighted guide conditions to a corner of the actual block learned on a symbolic level. Again following the same procedures he is taken through the process of reporting where he is and where portions of the block are in relationship to him as he is guided around the block. After he is able to remain oriented in this way, he is then asked to direct his guide's movements to specific corners. Example: "We are at the corner of New Hampshire and Melrose - facing Melrose. Direct me to Vermont and Monroe giving me details of our location, direction of travel and our relationship to other parts of the block as we move. Remember to give me this information after any turn."

A concept which can be introduced at this point is the directional side of a street. This concept could be left until after leaving the original block, thus beginning to cross streets, however, its placement in the instructional sequence does not seem to present learning problems. Referring to the experience in a room, we can introduce this concept as follows: "Remember that when we stood on the side of a room and looked across the room to the opposite side, which was for example the West side of the room, we were on the East side at that time. This is logical as East is opposite West. Similarly, when we want to determine what side of a street we are on we need only consider in what direction would we look across it. If we would be looking across the street to the West, like in our room example, then we must be on the opposite side from West or on the East side at present. We need not even look at the street, we can do this mentally. Example: "If I am going South with a street on my right, I know that I would be looking West if I looked across that street to my right; therefore, I am opposite the West side of the street. I am on the East side of the street."

CONCEPT OF A SEQUENCE OF BLOCKS

We are now able to travel within a city block using directional relationships to maintain an awareness of our position and the spatial relationships of the other parts of the block. The next step is to expand our environment.

ILLUSTRATION B - BASIC STREET PATTERN



The following procedure has been used successfully. (Use illustration B, page 18).

Beginning at a corner of the original block, it is suggested that a blind person learn a series of streets in any one direction. In reality the direction selected would probably be along a route to be used by him such as on the route to the bus line or going toward school, the store, etc. For the purpose of illustration, let us assume our student lives in the "Original Block" in illustration B, on Vermont, between 20th and 21st streets. He has learned the relationships of his block.

We now begin by telling him that as we walk along Vermont going either North or South, Vermont does not stop at the end of the block. It goes for a long, long way, perhaps all the way across town. If we cross 21st Street and keep going South, we will continue to have Vermont at our side. This we would then do. Having crossed the street and reinforced verbally, "Vermont is still on our left side just like before we crossed," we can now look for an assumption or deduction from the student. "What street must still be one block to our right if Vermont is still at our left?" The average student can draw a proper conclusion at this point. With a less capable student, the answer is given and it is explained as long as we continue in the same direction Vermont will be at our left and New Hampshire one block to the right just like in our original or basic block.

Before going on in the second block we would reinforce the fact that the street we just crossed is behind us. Therefore, we now have some unknown street ahead of us. "As we go South we will continue to have the same street at our right and left, however, everytime we come to a street and cross it, we will then have a new street ahead of us and the crossed street behind us."

"Therefore, in our second block we just crossed 21st and we are facing South. As we go South in this area the street numbers increase so that the next street is 22nd, the next 23rd, 24th, 25th, etc. If we are facing South, then 22nd is which side of this block?" South. "That means 21st has become the North side of this block, because we would have to look North to face it, just like in a room."

The complete sequence of orientation practice and testing done in the original block is then applied to the second block. Following completion of a successful pattern of work in the second block, the student is guided back to the original block. Student and instructor then begin going South into the second block by crossing 21st street. The instructor checks the student's ability to report his progressive position and the relationships of the parts of the new block. It has proven to be a good rule to require the student to report immediately after every crossing all the relationships, so that he does not forget what new set of streets are involved. Similarly, each turn within a block should involve reporting of all relationships. Without this, students often forget their location and relate to portions of the block previously traveled.

Having accomplished transfer from the original block to a subsequent one it now becomes a matter of reinforcing and testing the concept of a sequence of streets and blocks in one direction.

To do this one would then proceed along Vermont going South crossing 22nd, and ask for the relationships of all streets. The student should retain the fact that Vermont is still left, therefore, New Hampshire is still right. Likewise, that the numbers increase going South so 23rd is now ahead of them and 22nd is to the North side of this new block. Of course, if there is failure to transfer, the information would be given again as in block two and testing for transfer would be done in the third block.

Further testing, reinforcement and confidence building can and should take place through lessons having the student first maintain orientation on zig-zag routes made by the instructor within this sequence of streets and then through his independent selection of routes to suggested points in that environment.

BLOCK SEQUENCE IN A NEW DIRECTION

The next step is to introduce laterality to the environment. We now know what is in front of us and behind us from block to block, but what is to the left and right beyond the two streets we have remained between. Uniformity suggests we begin again at our original block but it may not be necessary to achieve continuity or learning. It can well be that other considerations such as a physical goal in the environment, traffic conditions, sidewalk placement or type might suggest a different starting point. With a number of students who received training in the same area, a starting point more central to the entire training area was selected so that immediate reference could be made to several streets laterally. For example, using illustration B, Page 18, if we begin in the block of 22nd and 23rd, and Vermont and New Hampshire, we can begin to learn the sequence of streets as we go West say along 23rd Street and immediately relate ourselves to several streets right and left because we have already learned the numbers increase going South and decrease going North.

Naturally we continue reinforcing the concepts of side of the street, and that the street at your side remains at your side as long as you continue in the same direction, etc. At the same time we can now entertain the idea that if 22nd is to your right or North, where is 21st and 20th? Similarly, where is 24th, 25th, etc.?

Going West we learn, reinforce, and practice orientation within the first block West of our starting point, then proceed a series of streets West doing as in our North-South series. At this stage we are maintaining a position between 22nd and 23rd as we move back and forth East and West.

THE GRID PATTERN

Having established the ability to remain oriented in this series of streets we now attempt to tie together the two series. Beginning with our regularly used method of instruction, the guide selects routes and guides the student in an increasingly long and complex series of crossings, turns and circumnavigations of intersections within the total area of streets learned. At this point he is keeping track of his position by sequentially being aware of the direction of his movement and the four streets that would necessarily relate to that movement at, and following each turn or crossing. Thus, he can be taken beyond the limits of Vermont and New Hampshire as he moves North or South and beyond the limits of 22nd and 23rd as he moves East and West. He may not yet comprehend how to locate a distant point by his own mental manipulation of the relationships. This is not to say some cannot do so at this point; however, many have been found to require one further step.

It has been necessary with many students to initially give them an example of determining how to locate a distant point in a known pattern of streets. Initially, the instructor can suggest to the student that to locate the intersection for two streets in the area, he first need only be concerned with locating one of the two streets. Then he can determine the direction of the other so that he follows the first street located, until it meets the second. For example: From the original block we know both that 23rd is South and Catalina is West. Therefore, if we wish to locate the intersection of Catalina and 23rd we should find one of the streets and follow it to the other. That is, go South to 23rd then go West to Catalina or vice versa.

DIRECTIONAL DESIGNATIONS OF INTERSECTION CORNERS

One remaining orientation concept remains to be included in the series of street relationships necessary for coping with the basic street pattern. That is the directional designation of intersection corners. Not infrequently do people refer to a place being on the Northwest corner of the intersection. Therefore, this is an important concept.

It is explained that the corners of an intersection get their name from their location in relationship to the two streets that meet at that point. The corner's name is determined by which side of each street it is on. For example: The Southwest corner of an intersection is so called because it is on the South side of one street and on the West side of the other, thus Southwest corner. Therefore, to locate a desired intersection corner you need only locate the intersection, then determine if it is necessary to cross one or both of the streets to be on the side of each which corresponds with the directional name. Naturally, practice is given in locating of corners by their directional name designation which also serves to reinforce all other aspects of the orientation training given.

An additional problem which can be included for practice and skill development in the use of directional relationship is requiring the student to direct the instructor to locate objectives in the following manner: "Direct me to the third house North of 24th on the West side of Brendo."

CONCLUSION

When the student, previously unaware of the relationships of streets within an area or even around a single block, is able to consistently direct his instructor to such objectives, he can then reasonably be expected to profit from instructions with a cane, or dog.

Learning to use a mobility aid, whether it is a dog, cane or other device, will provide physical protection but not the ability to travel independently in a variety of settings. This requires orientation and the ability to relate to the environment. Until this ability is developed, little value can come from instruction with a protective device such as the cane or dog, except perhaps for the individual who is limited by need or by low mental capability. These few individuals may learn to function on a limited basis, traveling the few specific routes which meet their needs. For the blind person to travel independently and expand his world, he must understand and be able to relate to his environment.

~~LETTER OF APPRECIATION FOR MY VALUABLE ORIENTATION AND MOBILITY TRAINING 1967~~

~~by Odd P. Nymoen~~

~~This paper is not intended to be a treatise on orientation and mobility. Rather it is, in gratitude, a letter containing reflective thoughts over last year's experiences in the orientation and mobility program at Western Michigan University. However, since the subject is still too big, such a letter will probably seem sketchy and incomplete, regardless of how it is arranged by this writer.~~

~~Although the reader may not be greatly impressed by its content, it is to be hoped that some observations as indicated here could form the basis for worthy discussions, and perhaps even for a greatly improved future report on what appears to be a troubled area within the education of the blind.~~

~~When I left Norway to participate in a training program for mobility specialists which would require twelve months of training, the greater part of that time in academic study at Western Michigan University, some people were puzzled (or stunned) by my desire to partake in such a costly and complex educational process, only to learn something concerning the specific field~~

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